

[11 December, 2006]

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(b) if so, the details thereof;

(c) whether it is a fact that if this drug is patented and sold in the market, it could be sold for 50 paise, whereas a similar drug in U.S.A. is at present sold @ 200/- (Two Hundred) Dollars;

(d) if so, whether Government would take expeditious steps to market the drug at the earliest, buy immediately patenting it; and

(e) if not, the reasons therefor?

THE MINISTER OF SCIENCE AND TECHNOLOGY (SHRI KAPIL SIBAL): (a) and (b) Yes Sir. Investigators at the Rajiv Gandhi Centre for Bio-technology and Regional Cancer Centre Thiruvananthapuram have developed an ayurvedic mouthwash consisting of three commonly used medicinal herbs for controlling radiation associated mucositis in patients with oral cancer. However it is not a one time remedy but repeated doses have to be taken during the course of the treatment. A clinical study funded by the Department of AYUSH has been done to find the effectiveness of the ayurvedic mouthwash in reducing the severity of oral mucositis in patients undergoing radical radiotherapy for oral cancers. A total of 148 patients with oral cancer undergoing radiotherapy with or without chemotherapy were randomized; 75 in the study arm and 73 in the control arm. Oral mucositis was observed to be significantly less in the study arm at Day 15, Pain due to mucositis and the analgesic requirement was also observed to be significantly less in the study arm as compared to controls.

(c) The approximate production cost in an experimental set up has been estimated to be 65 paise per dose excluding packaging and marketing costs. The commonly used drug to control mucositis called Amifostine (Ethyol) costs approximately Rs. 9000 per dose (single injection half an hour before radiation).

(d) and (e) The investigators have filed a patent application. The results of the patent application are awaited.

#### **Investment in Research and Development**

2069. SHRI MOINUL HASSAN: Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) the ratio of scientists among ten lakh population in India, China and other countries; and

(b) the per capita investment in research and development in India and other developing countries?

THE MINISTER OF SCIENCE AND TECHNOLOGY (SHRI KAPIL SIBAL): (a) and (b) The information on the number of scientists per million population engaged in research and the per capita R&D expenditure in India, China and other countries is as follows:—

| Sl. No. | Country          | No. of Scientists per million people | Per Capita R&D inUS\$ |
|---------|------------------|--------------------------------------|-----------------------|
| 1.      | Argentina        | 715                                  | 11.03                 |
| 2.      | Australia        | 3446                                 | 281.07                |
| 3.      | Austria          | 2346                                 | 564.59                |
| 4.      | Brazil           | 324                                  | 22.55                 |
| 5.      | Canada           | 3487                                 | 459.63                |
| 6.      | China            | 633                                  | 12.15                 |
| 7.      | Czech Rep.       | 1467                                 | 90.26                 |
| 8.      | Denmark          | 4822                                 | 869.68                |
| 9.      | Egypt, Arab Rep. | 493                                  | 2.20                  |
| 10.     | France           | 3134                                 | 552.08                |
| 11.     | Germany          | 3222                                 | 613.94                |
| 12.     | India*           | 110                                  | 3.53                  |
| 13.     | Japan            | 5085                                 | 976.58                |
| 14.     | Pakistan         | 88                                   | 1.13                  |
| 15.     | Rep. of Korea    | 2979                                 | 288.50                |
| 16.     | Singapore        | 4352                                 | 475.52                |
| 17.     | Srilanka         | 197                                  | 1.74                  |
| 18.     | Sweden           | 5171                                 | 1104.20               |
| 19.     | United Kingdom   | 2691                                 | 436.40                |
| 20.     | United States    | 4526                                 | 962.15                |
| 21.     | Venezuela, RB    | 222                                  | 14.48                 |

Source: \*Research and Development Statistics 2004-05  
UIS.UNESCO 2005

World Development Indicators 2004-05, The World Bank

China excludes Hong Kong

Note: 1 million = 10 lakhs